

NON-PUBLIC?: N  
ACCESSION #: 8802240074

LICENSEE EVENT REPORT (LER)

FACILITY NAME: Grand Gulf Nuclear Station - Unit 1 PAGE: 1 of 3

DOCKET NUMBER: 05000416

TITLE: Condenser Manway Leakage on Hotwell Low Level Switches Trips All  
Condensate and Condensate Booster Pumps Which Led to Reactor Scram  
on Low Water Level  
EVENT DATE: 1/20/88 LER #: 88-006-00 REPORT DATE: 2/19/88

OPERATING MODE: 1 POWER LEVEL: 097

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR  
SECTIONS:

50.73(a)(2)(iv), OTHER: Special Report

LICENSEE CONTACT FOR THIS LER:

NAME: Paul M. Different/Plant Licensing TELEPHONE #: 601-437-2149

COMPONENT FAILURE DESCRIPTION:

CAUSE: B SYSTEM: SG COMPONENT: COND MANUFACTURER: S290  
REPORTABLE TO NPRDS: N  
CAUSE: X SYSTEM: SD COMPONENT: LS MANUFACTURER: M235  
REPORTABLE TO NPRDS: N

SUPPLEMENTAL REPORT EXPECTED: No

ABSTRACT: On January 20, 1988 at 0439 the reactor automatically  
scrammed on low reactor water level (Level 3, +11.4 inches). The low  
reactor water level occurred when the condensate and condensate booster  
pumps tripped resulting in loss of feedwater flow. The Reactor Core  
Isolation Cooling (RCIC) System was manually initiated and the High  
Pressure Core Spray (HPCS) system automatically initiated on low low  
reactor water level (Level 2, -41.6 inches) and injected to the  
reactor vessel. A condenser circulating water manway cover leaked and  
sprayed water on the hotwell low level switches causing a false low hotwell  
level signal. The leak was from a rubber gasket which slipped from its groove  
on a manway cover. The gasket was replaced and glued in place preventing  
slippage between the cover and the mating surface. Protective shields were  
installed around the level switches to protect them against water spray  
events.

(End of Abstract)

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#### A. REPORTABLE OCCURRENCE

On January 20, 1988 at 0439 the reactor automatically scrammed on low reactor water level (Level 3, +11.4 inches). The low reactor water level occurred when the condensate and condensate booster pumps tripped resulting in a loss of feedwater flow. The High Pressure Core Spray (HPCS) system initiated and injected to the vessel on low low reactor water (Level 2, -41.6 inches). This condition is reportable pursuant to 10CFR50.73(a)(2)(iv). This report is also submitted as the Special Report required by Technical Specification 3.5.1 Action h. There have been five total HPCS system actuation cycles to date during reactor power operation.

#### B. INITIAL CONDITION

The plant was in Operational Condition 1 at 97 percent of rated thermal power. The reactor water level was normal at 35.8 inches.

#### C. DESCRIPTION OF OCCURRENCE

On January 20, 1988 at 0439 a leak occurred in the "A" circulating water intermediate pressure condenser (EIIS code GG-1SG-COND-B007B) lower manway cover on the west side of the condenser. This leak sprayed water onto hotwell low level switches 1N19-LSL-N105, 106, and 107 (EIIS code GG-1SD-LS-N105, 106, and 107). This caused electrical shorting in the level switches and produced a false low hotwell level signal which tripped all three condensate pumps. Condensate booster pumps tripped at the same time due to loss of all condensate pumps.

Reactor Core Isolation Cooling (RCIC) was manually initiated. The reactor automatically scrammed on low reactor water level (Level 3). Reactor water level continued to drop until level 2 was reached at which time the HPCS pump automatically started and injected to the reactor vessel. The HPCS Diesel Generator started and ran unloaded since no loss of electrical power occurred. The Standby Gas Treatment System (SGTS) automatically initiated and an Auxiliary Building isolation occurred.

Reactor water level reached its lowest level at -71 inches (95.7 inches above the top of active fuel as measured by wide range instrumentation) during the event at 0440. At 0443 level was restored to 0 inches on wide range and HPCS injection to the vessel was terminated. Water level

cleared the Level 3 trip at 0444 and was maintained in this band by RCIC and the control rod drive pump.

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At 0505 the trip signal was cleared from the condensate pump trip logic by removing the actuated relay and a condensate pump was returned to operation. At 0510 RCIC was secured and a condensate booster pump started. At 0529 HPCS and HPCS Diesel Generator were returned to standby.

#### D. APPARENT CAUSE

The rubber gasket on the "A" circulating water intermediate pressure condenser lower manway cover on the west side of the condenser slipped from its groove allowing water to spray on the previously listed hotwell low level switches. The level switches are manufactured by Mercoid, model # 205WT-7810-C1-75. The manway is part of the condenser which was manufactured by Southwestern Engineering Company. The gasket joint design is such that internal pressure tends to move the gasket.

#### E. SUPPLEMENTAL CORRECTIVE ACTION

The rubber gaskets on all circulating water train "A" manways were replaced and glued in place to prevent the gasket from rolling out of the groove on the mating surface. The manways were then tightened using an improved procedure to assure a more even gasket compression on the manway cover. The gaskets on all circulating water train "B" manways were visually inspected for proper sealing with the circulating water system in service. No other problems were found. A special evaluation is being performed to determine if design changes to the manway covers or associated gaskets are necessary.

The level switches were replaced and returned to service. The condensate pump trip logic was restored to normal by reinstalling the actuated relay. Protective shielding was erected around the level switches to protect them against water spray events.

#### F. SAFETY ASSESSMENT

Operators responded by manually initiating RCIC. All automatic safety systems responded as designed. Reactor water level reached a minimum value of -71 inches on wide range instruments which is 95.7 inches above the top of active fuel. The Low Pressure Core Spray, Low Pressure Coolant Injection, and Automatic Depressurization System were available to maintain or restore level if required.

SYSTEM ENERGY  
RESOURCES, INC.  
OLIVER D. KINGSLEY, JR  
Vice President February 19, 1988  
Nuclear Operations

U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

Attention: Document Control Desk

Gentlemen:

SUBJECT: Grand Gulf Nuclear Station  
Unit 1  
Docket No. 50-416  
License No. NPF-29  
Condenser Manway Leakage on  
Hotwell Low Level Switches  
Trips All Condensate and  
Condensate Booster Pumps  
Which Led to Reactor Scram  
on Low Water Level  
LER 88-006-00  
AECM-88/0042

Attached is Licensee Event Report (LER) 88-006-00 which is a final report.

Yours truly,

ODK:bms  
Attachment

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